Application No. 09/492,114
Reply to Office Action of Jun. 17, 2004
Amendment dated Sep. 7, 2004

REMARKS/ARGUMENTS

The Examiner rejects claims 1-9 and 16-28 under 35 U.S.C.§102(b) as being anticipated by EP 0 863 651.

Applicants respectfully traverse the Examiner's rejections.

The present invention, in a preferred configuration, is directed to a resource allocation algorithm that dynamically repositions enqueued calls as new calls arrive such that service level objectives associated with incoming calls as well as enqueued calls are considered equally. The algorithm is particularly useful for a queue having calls of a number of different call types. In one configuration, the algorithm works by comparing first and second quality values associated with placing the new call in first and second queue positions. The queue position having the more favorable quality value is selected for the new call. The first quality value assumes that a currently enqueued call remains in a first queue position while the new enqueued call is placed in a second, later queue position. The second quality value assumes that the new call is placed in the first queue position while the currently enqueued call in the first position is moved to the second queue position. The quality values reflect factors such as weighted advance time, current queue position or estimated wait time, actual time already in queue, and the service level target value for the call type. A detailed discussion of the mathematical relationships for these values is provided at pages 13-16 of the application.

EP 0 863 651 fails to teach or suggest at least the following italicized features in the pending independent claims:

1.   A method for use in managing a call queue within a call center, said call queue for handling calls having a plurality of different call types that each have a corresponding service objective value, comprising the steps of:
     receiving a new call from an exterior environment, said new call having a first call type;
     ascertaining a first service objective value associated with said new call based on said first call type;
     selecting a currently enqueued call in the call queue, the currently enqueued call having a second service objective value;

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> *determining a first quality factor assuming that the new call is enqueued after the currently enqueued call; .*
>
> *determining a second quality factor assuming that the new call is enqueued in place of the currently enqueued call, said first quality factor reflecting the first and second service objective values; and*
>
> *comparing the first and second quality factors to determine a position within the call queue for the new call.*

16.   A system for use in distributing incoming calls to a plurality of local agents in a call center, said system comprising:

a receiver for receiving incoming calls from an exterior environment;

a call queue unit for use in maintaining a queue of calls to be answered by the plurality of local agents, said queue having a plurality of successive queue positions including an initial queue position, said initial queue position for holding a call that is next in line to be answered by an agent in the plurality of local agents; and

a call positioning unit for positioning a new call received by said receiver within the queue, *said call positioning unit determining a position within the queue for the new call by determining a first quality factor assuming that the new call is enqueued in a first position in the queue and a second quality factor assuming that the new call is enqueued in a second, different position in the queue and comparing the relative values of the first and second quality factors.*

23.   A method for use in managing a call queue within a call center, comprising the steps of:

receiving a new call from an exterior environment;

selecting a currently enqueued call in the call queue;

determining a first quality factor assuming that the new call is enqueued after the currently enqueued call;

determining a second quality factor assuming that the new call is enqueued in place of the currently enqueued call; and

comparing the first and second quality factors to determine a position within the call queue for the new call.

EP 0 863 651 is directed to a selection function that selects, for servicing by an available agent, a call from among calls in multiple queues. The function considers the call at the head of the highest-priority non-empty queue of each set of queues from which the available agent is eligible to handle a call and selects the call that is farthest along according to some predefined measure — either

in actual time or as a percentage of the service time objective of as a combination thereof. In a

described configuration, the function computes the expired service-time objective ratio 222 from

table 220 at step 208. For each of the calls at the heads of the determined call queues 21, the

function then computes the expired service-time objective ratio or percentage by dividing the wait

time obtained at step 206 by the service-time objective and for percentage multiplying the result by

100 at step 210. If two or more calls have the same expired service-time objective, the function

selects from among them the call which has the highest priority. Alternatively, the function may

compute at step 210 the difference between the service-time objective and the actual or anticipated

wait time for each of the subject calls, by subtracting the wait time obtained at step 206 from the

service time objective, and then selecting at step 212 the call that has the lowest (including negative)

resulting difference. If no call happens to have already exceeded its service time objective, the call

that comes closest to exceeding its objective is selected. If any calls happen to have already

exceeded their service-time objectives, the call that has most exceeded its objective is selected.

EP 0 863 651 fails to teach or suggest, among other things, the determination of a first quality

factor assuming that a new call is enqueued after a currently enqueued call and a second quality

factor assuming that the new call is enqeued in place of the currently enqeued call and the

comparison of the first and second quality factors to determine a position within the call queue for

the new call. EP 0 863 651, in contrast, selects a best call from among a plurality of calls at the

heads of a plurality of call queues for servicing by an available agent. It does not compute quality

factors based on hypothetical queue positions for a new call.

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Accordingly, the pending claims are allowable.

The dependent claims provide further bases for allowance.

By way of example, Claims 3-8 are directed to the calculation and use of various ratios, each of which includes estimated total wait time in queue.

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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